

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the above-referenced application.

Listing of Claims:

1. (Withdrawn) A method for requesting and sending data in a DSL network, the method comprising:

- (a) Generating a request to send and receive data; and
- (b) Embedding the request within a superframe.

2. (Withdrawn) The invention of claim 1 wherein the request comprises RTS/CTS signals.

3. (Presently Amended) A method for oversubscribing a group of M DSL modems ~~modem, the method~~ comprising the steps of:

- (a) connecting the group of M DSL modems to a first set of M Customer Premise Equipment devices;
- (b) connecting a group of P OAM/EOC modems to a first set of P Customer Premise Equipment devices;
- (c) transferring user traffic data between the group of M DSL modems and the first set of M Customer Premise Equipment devices; and
- (d) transferring synchronization data between the group of P OAM/EOC modems and the first set of P Customer Premise Equipment devices.

4. (Presently Amended) The ~~invention method of claim~~ Claim 3, further comprising the steps of:

- (e) connecting the group of M DSL modems to a second set of M Customer Premise Equipment devices, wherein at least some of the second set of M Customer Premise Equipment devices are members of the first set of P Customer Premise Equipment devices;

(f) connecting the group of P OAM/EOC modems to a second set of P Customer Premise Equipment devices, wherein at least some of the second set of P Customer Premise Equipment devices are members of the first set of M Customer Premise Equipment devices;

(g) transferring user traffic data between the group of M DSL modems and the second set of M Customer Premise Equipment devices; and

(h) transferring synchronization data between the group of P OAM/EOC modems and the second set of P Customer Premise Equipment devices.

5. (Presently Amended) The ~~invention~~ method of ~~claim~~ Claim 4, further comprising the step of: determining the first and second sets of M and P Customer Premise Equipment devices at least in part via RTS/CTS signals.

6. (Presently Amended) The ~~invention~~ method of ~~claim~~ Claim 5, further comprising the step of: embedding the RTS/CTS signals within superframes.

7. (Presently Amended) The ~~invention~~ method of ~~claim~~ Claim 3, wherein the bandwidth requirements of the synchronization data is less than about 1 percent of that of the user traffic data.

8. (Presently Amended) The ~~invention~~ method of ~~claim~~ Claim 3, further comprising the step of: ~~for each M DSL modem connected to each M Customer Premise Equipment device,~~ stopping the transfer of user traffic data for a DSL modem of the group of M DSL modems connected to a Customer Premise Equipment device of the first set of M Customer Premise Equipment devices when at least one of the following condition are met: Time-Out, or No-More Data.

9. (Presently Amended) A system for oversubscribing a group of M a DSL modem, modems ~~the system connected between at least one upstream data link and a plurality of N downstream data links, each downstream data link coupled to respective Customer Premise Equipment devices, the system~~ comprising:

an interface between the group of M DSL modems and an ~~connected to the at least one~~ upstream data link;

a group of P OAM/EOC modems in communication with the group of said M DSL modems; and

a switch connected to a plurality of the N downstream data links, said the group of M DSL modems, and the group of said P OAM/EOC modems, a first downstream data link of the plurality of downstream data links being coupled to a Customer Premise Equipment device, wherein user traffic data is transferred over the first downstream data link between the Customer Premise Equipment device and the upstream data link via one of the group of M DSL modems and synchronization data is transferred over the first downstream data link between the Customer Premise Equipment device and one of the group of P OAM/EOC modems.

10. (Presently Amended) The ~~invention~~ system of ~~claim~~ Claim 9, further comprising means for communicating RTS/CTS signals between the ~~respective~~ Customer Premise Equipment ~~device devices~~ and said either one of the group of M DSL ~~modem~~ modems or one of the group of ~~and~~ said P OAM/EOC modems.

11. (Withdrawn) A system for oversubscribing a DSL modem, the system connected between at least one upstream data links and a plurality of N downstream data links, the system comprising:

an M:N analog multiplexer connected to the N downstream data links;

a P:N analog multiplexer connected to the N downstream data links;

a DSL DSP path comprising:

M DSL DSPs connected to the at least one upstream data link;

M High Frequency Digitizers in communication with said M DSL DSPs;

M 2to4 Hybrids with Line Drivers in communication with said M High Frequency Digitizers; and

M Isolation Circuitry in communication with said M 2to4 Hybrids with Line Drivers and with said M:N analog multiplexer;

an OAM/EOC DSP path comprising:

P OAM/EOC DSPs

P Low Frequency Digitizers in communication with said P OAM/EOC DSPs;

P 2to4 Hybrids with Line Drivers in communication with said P Low Frequency Digitizers; and

P Isolation Circuitry in communication with said P 2to4 Hybrids with Line Drivers and with said P:N analog multiplexer.

12. (Withdrawn) A system for oversubscribing a DSL modem, the system connected between at least one upstream data links and a plurality of N downstream data links, the system comprising:

an M:N analog multiplexer;

a P:N analog multiplexer;

N Isolation Circuitry connected to the N downstream data links and in communication with said M:N analog multiplexer and said P:N analog multiplexer;

A DSL DSP path comprising:

M DSL DSPs connected to the at least one upstream data link;

M High Frequency Digitizers in communication with said M DSL DSPs; and

M 2to4 Hybrids with Line Drivers in communication with said M High Frequency Digitizers and with said M:N analog multiplexer;

an OAM/EOC DSP path comprising:

P OAM/EOC DSPs;

P Low Frequency Digitizers in communication with said P OAM/EOC DSPs; and

P 2to4 Hybrids with Line Drivers in communication with said P Low Frequency Digitizers and with said P:N analog multiplexers.

13. (Withdrawn) A system for oversubscribing a DSL modem, the system connected between at least one upstream data links and a plurality of N downstream data links, the system comprising:

an M:N analog multiplexer;

a P:N analog multiplexer;

N 2to4 Hybrids with Line Drivers in communication with said M:N analog multiplexer and said P:N analog multiplexer;

N Isolation Circuitry connected to the N downstream data links and in communication with said N 2to4 Hybrids with Line Drivers;

a DSL DSP path comprising:

M DSL DSPs connected to the at least one upstream data link, and

M High Frequency Digitizers in communication with said M DSL DSPs and with said M:N analog multiplexer;

an OAM/EOC DSP path comprising:

P OAM/EOC DSPs, and

P Low Frequency Digitizers in communication with said P OAM/EOC DSPs and with said P:N analog multiplexer.

14. (Withdrawn) A system for oversubscribing a DSL modem, the system connected between at least one upstream data links and a plurality of N downstream data links, the system comprising:

an M:N digital multiplexer;

a P:N digital multiplexer;

N High Frequency Digitizers in communication with said M:N digital multiplexer and said P:N digital multiplexer;

N 2to4 Hybrids with Line Drivers in communication with said N High Frequency Digitizers;

N Isolation Circuitry connected to the N downstream data links and in communication with said N 2to4 Hybrids with Line Drivers;

a DSL DSP path comprising M DSL DSPs connected to the at least one upstream data link and in communication with said M:N digital multiplexer; and

an OAM/EOC DSP path comprising P OAM/EOC DSPs in communication with said P:N digital multiplexer.

15. (Withdrawn) A system for oversubscribing a DSL modem, the system connected between at least one upstream data links and a plurality of N downstream data links, the system comprising:

A Time Division Multiplexed Switch;

N High Frequency Digitizers in communication with said Time Division Multiplexed Switch;

N 2to4 Hybrids with Line Drivers in communication with said N High Frequency Digitizers;

N Isolation Circuitry connected to the N downstream data links and in communication with said N 2to4 Hybrids with Line Drivers;

a DSL DSP path comprising M DSL DSPs in communication with said Time Division Multiplexed Switch and connected to the at least one upstream data link; and

an OAM/EOC DSP path comprising P OAM/EOC DSPs in communication with said Time Division Multiplexed Switch.

16. (Presently Amended) The ~~invention~~ system of ~~claim~~ Claim 9, 11, 12, 13, 14, or 15 wherein one or more of the plurality of N downstream data links ~~comprise~~ comprises a POTS lines line.

17. (Presently Amended) The ~~invention~~ system of ~~claim~~ Claim 9, 11, 12, 13, 14, or 15 wherein the ~~at least one~~ upstream data link comprises ~~at least one of the following~~: a POTS line, optical fiber, a twisted pair conductor, the Public Switched Telephone Network, a T1 connection, a T3 connection, an ISDN connection, a coaxial cable, an SHDSL link, an ADSL link, a VDSL link, an HDSL link, a V.90 link, or and an OCn link.

18. (Presently Amended) The ~~invention~~ system of ~~claim~~ Claim 9, 11, 12, 13, 14, or 15 wherein $M+P=N$, and wherein P is at least 1.

19. (Presently Amended) ~~In a system comprising a plurality of Customer Premise Equipment devices, a~~ A method for oversubscribing a group of M DSL modem modems, the method comprising the steps of:

(a) connecting a Customer Premise Equipment device, according to the priority and order of a request from ~~each the~~ Customer Premise Equipment device, ~~connecting each Customer Premise Equipment device~~ either to a one of the group of M DSL modem modems or to an OAM/EOC Modem;

(b) transferring user traffic data for the each Customer Premise Equipment device, if the Customer Premise Equipment device is connected to a DSL Modem, transferring user traffic data, otherwise if connected to an OAM/EOC Modem, transferring synchronization data;

transferring synchronization data if the Customer Premise Equipment device is connected to an OAM/EOC Modem;

~~(e) (d) for each Customer Premise Equipment device connected to a DSL Modem,~~
determining if whether a Time-Out or a No-More-Data condition exists if the Customer Premise Equipment device is connected to a DSL Modem; and

~~(d) (e) if a Time-Out or No-More-Data condition exists, as determined in (e) repeating steps (a)-(d) (e), otherwise repeating steps (b)-(d) (e).~~